

SAF-RC-233
100-IU-2 & 100-IU-6 Remaining
Waste Sites – Soil In-Process
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt

H4-21

KW 9/15/14
INITIAL/DATE

COMMENTS:

SDG XP0122

SAF-RC-233

Rad only

Chem only

Rad & Chem

Complete

Partial

**Sample Location: 100-B-35:1, 151-B Electrical switchyard,
EXC, IP**



August 28, 2014

Joan Kessner
WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
Richland, Washington 99354

Re: RC-233 Soil
Work Order: 355423
SDG: XP0122

Dear Joan Kessner:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 26, 2014. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1616.

Sincerely,

Orlette Johnson
Project Manager

Purchase Order: 1510
Chain of Custody: RC-233-054
Enclosures



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Case Narrative

**Receipt Narrative
for
WC-HANFORD, INC.
SDG: XP0122
Work Order: 355423**

August 28, 2014

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary:

Sample receipt: The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on August 26, 2014 for analysis.

Sample Identification: The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
355423001	J1TXK5
355423002	J1TXK6
355423003	J1TXK7
355423004	J1TXK8
355423005	J1TXK9
355423006	J1TXT7
355423007	J1TXT8
355423008	J1TXT9

Case Narrative:

Sample analyses were conducted using methodology as outlined in GEL's Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC Semivolatiles PCB.



Orlette Johnson
Project Manager

Chain of Custody and Supporting Documentation

Washington Closure Hanford **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** **RC-233-055** **Page 1 of 1**

Collector: *A. Weber*
Project Designation: 100-IU-2 & 100-IU-6 Remaining Waste Sites
Ice Chest No.: *WCH-11-072*
Shipped To: **GEL Laboratories Charleston**
Other Labs Shipped To: *N/A*

Company Contact: Joan Kessner
Telephone No.: 375-4688
Project Coordinator: KESSNER, JH
Price Code: RC-233-055
Project Logbook No.: EL-1667-02
COA: 010B352600
Offsite Property No.: *A131221*
Method of Shipment: Commercial Carrier
Carrier: *FED EX*
Bill of Lading/Air Bill No.: *See OSPC*

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
Cool 4C

Sample No.	Matrix	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	Sample Analysis
J1TXT7	SOIL	8/25/14	0803	Cool 4C	ag	1	125mL	PCBs - 8082
J1TXT8	SOIL	8/25/14	0808					
J1TXT9	SOIL	8/25/14	0812					
J1TXV0	SOIL	8/25/14						
J1TXV1	SOIL							

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
<i>Washington Closure</i>	8/25/14 0818	<i>R. F. Hill</i>	8-25-14 0818
<i>Rafshen B. F. Hill</i>	8-25-14 0930	<i>#3A 1060 Bottelle Blvd</i>	8-25-14 0930
<i>1060 Bottelle Fridge 3A</i>	8/25/14 1030	<i>EM Sexton</i>	8/25/14 1030
<i>EM Sexton</i>	8/25/14	<i>FED EX</i>	8/25/14
<i>FED EX</i>		<i>P. W. Dent</i>	8/26/14 0900
		<i>Patricia Dent</i>	

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

FINAL SAMPLE DISPOSITION

Disposal Method: _____ Date/Time: _____

Disposed By: _____ Date/Time: _____

SPECIAL INSTRUCTIONS

* Custodian unavailable to remove samples from controlled storage. Shipper removed samples, taking custody for shipment to lab.

REVIEWED BY: *K. W. Dent*
DATE: *8/25/14*

XP0122

WCH-EE-011

Client: <u>WCHN</u>		SDG/AR/COC/Work Order: <u>355403</u>
Received By: <u>P. Dent</u>		Date Received: <u>8/26/14</u>
Suspected Hazard Information	Yes No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0/cpm</u>
Classified Radioactive II or III by RSO?		If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		
Package, COC, and/or Samples marked as beryllium or asbestos containing?		If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	X			Preservation Method: <u>Ice bags</u> <u>Blue ice</u> Dry ice None Other (describe) <u>Ice</u> *all temperatures are recorded in Celsius
2a Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): <u>130462966</u>
3 Chain of custody documents included with shipment?	X			
4 Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?		X		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 VOA vials free of headspace (defined as < 6mm bubble)?		X		Sample ID's and containers affected:
7 Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	X			ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11 Number of containers received match number indicated on COC?	X			Sample ID's affected:
12 Are sample containers identifiable as GEL provided?			X	
13 COC form is properly signed in relinquished/received sections?	X			
14 Carrier and tracking number.				Circle Applicable: <u>FedEx Air</u> FedEx Ground UPS Field Services Courier Other <u>7709 3582 9040</u>

Comments (Use Continuation Form if needed):

Laboratory Certifications

List of current GEL Certifications as of 28 August 2014

State	Certification
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC000122013-10
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC000122013-10
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA130005
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC000122013-10
Nebraska	NE-OS-26-13
Nevada	SC000122014-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
Plant Material Permit	PDEP-12-00260
South Carolina Chemistry	10120001
South Carolina GVL	23611001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235-14-9
Utah NELAP	SC000122014-14
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12
Wisconsin	999887790

PCB Analysis

Case Narrative

**PCB Case Narrative
WC-HANFORD, INC. (WCHN)
SDG XP0122**

Method/Analysis Information

Procedure: Analysis of Polychlorinated Biphenyls by ECD
Analytical Method: SW846 3541/8082A
Prep Method: SW846 3541
Analytical Batch Number: 1414575
Prep Batch Number: 1414574

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3541/8082A:

Sample ID	Client ID
355423001	J1TXK5
355423002	J1TXK6
355423003	J1TXK7
355423004	J1TXK8
355423005	J1TXK9
355423006	J1TXT7
355423007	J1TXT8
355423008	J1TXT9
1203155897	MB for batch 1414574
1203155898	Laboratory Control Sample (LCS)
1203155899	Laboratory Control Sample Duplicate (LCSD)
1203155902	355423001(J1TXK5) Matrix Spike (MS)
1203155903	355423001(J1TXK5) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

Preparation/Analytical Method Verification

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-040 REV# 20.

Raw data reports are processed and reviewed by the analyst using the Chemstation software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package.

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements

All associated calibration verification standards (ICV or CCV) met the acceptance criteria for the target analytes. All analytes were within the established retention time windows for this method.

Surrogate recovered slightly above the acceptance limits in one of the CCV standards analyzed for this SDG; however, this had no adverse effects on the data as all samples associated with this SDG recovered well within the acceptance limits for the surrogate.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

All surrogate recoveries were within the established acceptance criteria for the samples in this SDG in this batch.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery

The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement

The RPD between the LCS and LCSD met the acceptance limits.

QC Sample Designation

Sample 355423001 (J1TXK5) was selected for the matrix spike and matrix spike duplicate analysis.

Matrix Spike (MS) Recovery Statement

The MS recoveries for this SDG were within the established acceptance limits.

Matrix Spike Duplicate (MSD) Recovery Statement

The MSD recoveries for this SDG were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement

The RPD between the MS and MSD met the acceptance limits.

Technical Information

Holding Time Specifications

GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection of sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required in this SDG in this batch.

Miscellaneous Information**Electronic Package Comment**

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

Data exception report (DER) is generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A DER was not required for the samples in this SDG in this batch.

Manual Integrations

Certain standards and samples may have required manual integration to correctly position the baseline as set in the calibration standard injections. If manual integration was performed, copies of all manual integration peak profiles are included in the raw data section of this PCB fraction.

Additional Comments

The additional comments field is used to address special issues associated with each analysis, clarify method/contractual issues pertaining to the analysis, and to list any report documents generated as a result of sample analysis or review. The following additional comments were required:

The front column has been chosen as the primary column. The data are reported from the front column for all samples in this batch.

Due to software issue, the surrogate recovery range was not indicated in Quantitation Report. Please see Surrogate Recovery Report for correct surrogate acceptance limits.

Due to rounding differences in the calculation between the forms, the data reported in Sample Summary (form 1) and Spike Recovery Report (form 3) may differ slightly from the data reported in Identification Summary (form 10).

Aroclors quantitated on the raw data report by ChemStation data system do not necessarily represent positive Aroclor identification. In order for positive identification to be made, the Aroclor must match in pattern and retention time; as well as quantitate relatively close between the primary and confirmation columns, as specified in SW846 method 8000. When these conditions are not met, the Aroclor is reported as a non-detect on the data report.

System Configuration

The Semi-Volatiles-PCB analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
ECD8A.I_1	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP I	30m x 0.25mm, 0.25um (Rtx-CLPesticide I)
ECD8A.I_2	Agilent 6890 Gas Chromatograph/Dual ECD w/ 7683 Autosampler	HP6890 Series ECD	Rtx-CLP II	30m x 0.25mm, 0.20um (Rtx-CLPesticide II)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

WCHN001 WC-HANFORD, INC.

Client SDG: XP0122 GEL Work Order: 355423 Project: RC-233 Soil

The Qualifiers in this report are defined as follows:

J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

DL Indicates that sample is diluted.

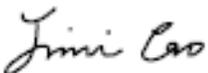
RA Indicates that sample is re-analyzed without re-extraction.

RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Jimin Cao

Date: 28 AUG 2014

Title: Data Validator

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: August 27, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0122

Client Sample ID: J1TXK5
 Sample ID: 355423001
 Matrix: SOIL
 Collect Date: 25-AUG-14 07:37
 Receive Date: 26-AUG-14
 Collector: Client
 Moisture: 1.17%

Project: WCHN00313
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"											
Aroclor-1016	U	1.12	1.12	3.37	ug/kg	1	JXM	08/27/14	0839	1414575	1
Aroclor-1221	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1260	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.37	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.37	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	08/26/14	1710	1414574

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.32 ug/kg	6.74	64.1	(44%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	5.01 ug/kg	6.74	74.3	(35%-119%)

Notes:

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Certificate of Analysis

Report Date: August 27, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0122

Client Sample ID: J1TXK6
 Sample ID: 355423002
 Matrix: SOIL
 Collect Date: 25-AUG-14 07:41
 Receive Date: 26-AUG-14
 Collector: Client
 Moisture: 1.3%

Project: WCHN00313
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"											
Aroclor-1016	U	1.12	1.12	3.38	ug/kg	1	JXM	08/27/14	0923	1414575	1
Aroclor-1221	U	1.12	1.12	3.38	ug/kg	1					
Aroclor-1232	U	1.12	1.12	3.38	ug/kg	1					
Aroclor-1242	U	1.12	1.12	3.38	ug/kg	1					
Aroclor-1248	U	1.12	1.12	3.38	ug/kg	1					
Aroclor-1254	U	1.12	1.12	3.38	ug/kg	1					
Aroclor-1260	U	1.12	1.12	3.38	ug/kg	1					
Aroclor-1262	U	1.12	1.12	3.38	ug/kg	1					
Aroclor-1268	U	1.12	1.12	3.38	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	08/26/14	1710	1414574

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.89 ug/kg	6.75	72.4	(44%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	5.25 ug/kg	6.75	77.8	(35%-119%)

Notes:

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Certificate of Analysis

Report Date: August 27, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0122

Client Sample ID: J1TXK7
 Sample ID: 355423003
 Matrix: SOIL
 Collect Date: 25-AUG-14 07:45
 Receive Date: 26-AUG-14
 Collector: Client
 Moisture: 2.44%

Project: WCHN00313
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"											
Aroclor-1016	U	1.14	1.14	3.41	ug/kg	1	JXM	08/27/14	0937	1414575	1
Aroclor-1221	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1232	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1242	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1248	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1254	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1260	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1262	J	3.41	1.14	3.41	ug/kg	1					
Aroclor-1268	U	1.14	1.14	3.41	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	08/26/14	1710	1414574

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.92 ug/kg	6.83	72.0	(44%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.84 ug/kg	6.83	70.9	(35%-119%)

Notes:

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Report Date: August 27, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
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 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0122

Client Sample ID: J1TXK9
 Sample ID: 355423005
 Matrix: SOIL
 Collect Date: 25-AUG-14 07:56
 Receive Date: 26-AUG-14
 Collector: Client
 Moisture: 1.97%

Project: WCHN00313
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"											
Aroclor-1016	U	1.13	1.13	3.39	ug/kg	1	JXM	08/27/14	1006	1414575	1
Aroclor-1221	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1232	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1242	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1248	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1254	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1260	J	2.58	1.13	3.39	ug/kg	1					
Aroclor-1262	U	1.13	1.13	3.39	ug/kg	1					
Aroclor-1268	U	1.13	1.13	3.39	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	08/26/14	1710	1414574

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	5.16 ug/kg	6.79	76.0	(44%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	5.44 ug/kg	6.79	80.1	(35%-119%)

Notes:

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 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0122

Client Sample ID: J1TXT7
 Sample ID: 355423006
 Matrix: SOIL
 Collect Date: 25-AUG-14 08:03
 Receive Date: 26-AUG-14
 Collector: Client
 Moisture: 2.56%

Project: WCHN00313
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"											
Aroclor-1016	U	1.14	1.14	3.42	ug/kg	1	JXM	08/27/14	1045	1414575	1
Aroclor-1221	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1232	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1242	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1248	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1254	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1260		7.33	1.14	3.42	ug/kg	1					
Aroclor-1262	U	1.14	1.14	3.42	ug/kg	1					
Aroclor-1268	U	1.14	1.14	3.42	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	08/26/14	1710	1414574

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.97 ug/kg	6.84	72.7	(44%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.98 ug/kg	6.84	72.8	(35%-119%)

Notes:

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Certificate of Analysis

Report Date: August 27, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0122

Client Sample ID: J1TXT8
 Sample ID: 355423007
 Matrix: SOIL
 Collect Date: 25-AUG-14 08:08
 Receive Date: 26-AUG-14
 Collector: Client
 Moisture: 1.91%

Project: WCHN00313
 Client ID: WCHN001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"											
Aroclor-1016	U	1.13	1.13	3.40	ug/kg	1	JXM	08/27/14	1059	1414575	1
Aroclor-1221	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1232	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1242	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1248	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1254	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1260		6.92	1.13	3.40	ug/kg	1					
Aroclor-1262	U	1.13	1.13	3.40	ug/kg	1					
Aroclor-1268	U	1.13	1.13	3.40	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	08/26/14	1710	1414574

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.21 ug/kg	6.79	62.0	(44%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.27 ug/kg	6.79	62.9	(35%-119%)

Notes:

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Certificate of Analysis

Report Date: August 27, 2014

Company : WC-Hanford, Inc.
 Address : 2620 Fermi Avenue
 MSIN H4-21
 Richland, Washington 99354
 Contact: Joan Kessner
 Project: RC-233 Soil

Client SDG: XP0122

Client Sample ID: J1TXT9	Project: WCHN00313
Sample ID: 355423008	Client ID: WCHN001
Matrix: SOIL	
Collect Date: 25-AUG-14 08:12	
Receive Date: 26-AUG-14	
Collector: Client	
Moisture: 2.38%	

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB											
SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"											
Aroclor-1016	U	1.14	1.14	3.41	ug/kg	1	JXM	08/27/14	1113	1414575	1
Aroclor-1221	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1232	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1242	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1248	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1254	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1260	J	1.43	1.14	3.41	ug/kg	1					
Aroclor-1262	U	1.14	1.14	3.41	ug/kg	1					
Aroclor-1268	U	1.14	1.14	3.41	ug/kg	1					

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	SXW3	08/26/14	1710	1414574

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.60 ug/kg	6.82	67.4	(44%-106%)
Decachlorobiphenyl	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.90 ug/kg	6.82	71.8	(35%-119%)

Notes:

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: August 27, 2014

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WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
Richland, Washington
Joan Kessner

Contact:

Workorder: 355423

Client SDG: XP0122

Project Description: RC-233 Soil

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-PCB											
Batch	1414575										
QC1203155898	LCS										
Aroclor-1016	33.3			22.1	ug/kg		66.4	(39%-120%)	JXM	08/27/14	08:15
Aroclor-1260	33.3			23.1	ug/kg		69.4	(50%-116%)			
**4cmx	6.66			5.50	ug/kg		82.6	(44%-106%)			
**Decachlorobiphenyl	6.66			6.69	ug/kg		100	(35%-119%)			
QC1203155899	LCS										
Aroclor-1016	33.3			19.1	ug/kg	14.6	57.4	(0%-30%)		08/27/14	08:27
Aroclor-1260	33.3			21.1	ug/kg	9.05	63.4	(0%-30%)			
**4cmx	6.67			4.64	ug/kg		69.6	(44%-106%)			
**Decachlorobiphenyl	6.67			6.30	ug/kg		94.5	(35%-119%)			
QC1203155897	MB										
Aroclor-1016			U	1.11	ug/kg					08/27/14	08:03
Aroclor-1221			U	1.11	ug/kg						
Aroclor-1232			U	1.11	ug/kg						
Aroclor-1242			U	1.11	ug/kg						
Aroclor-1248			U	1.11	ug/kg						
Aroclor-1254			U	1.11	ug/kg						
Aroclor-1260			U	1.11	ug/kg						
Aroclor-1262			U	1.11	ug/kg						
Aroclor-1268			U	1.11	ug/kg						
**4cmx	6.66			6.02	ug/kg		90.4	(44%-106%)			
**Decachlorobiphenyl	6.66			6.96	ug/kg		105	(35%-119%)			

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QC Summary

Workorder: 355423

Client SDG: XP0122

Project Description: RC-233 Soil

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Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Semi-Volatiles-PCB											
Batch	1414575										
QC1203155902	355423001	MS									
Aroclor-1016	33.7	U	1.12	17.3	ug/kg		51.3	(25%-125%)	JXM	08/27/14	08:54
Aroclor-1260	33.7	U	1.12	18.5	ug/kg		54.9	(28%-127%)			
**4cmx	6.74		4.32	4.37	ug/kg		64.8	(44%-106%)			
**Decachlorobiphenyl	6.74		5.01	4.69	ug/kg		69.6	(35%-119%)			
QC1203155903	355423001	MSD									
Aroclor-1016	33.7	U	1.12	21.0	ug/kg	19.3	62.3	(0%-30%)		08/27/14	09:08
Aroclor-1260	33.7	U	1.12	20.8	ug/kg	11.7	61.7	(0%-30%)			
**4cmx	6.74		4.32	5.17	ug/kg		76.7	(44%-106%)			
**Decachlorobiphenyl	6.74		5.01	5.10	ug/kg		75.7	(35%-119%)			

Notes:

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- o Analyte failed to recover within LCS limits (Organics only)

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QC Summary

Workorder: 355423

Client SDG: XP0122

Project Description: RC-233 Soil

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<u>Parmname</u>	<u>NOM</u>	<u>Sample Qual</u>	<u>QC</u>	<u>Units</u>	<u>RPD%</u>	<u>REC%</u>	<u>Range</u>	<u>Anlst</u>	<u>Date</u>	<u>Time</u>
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N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Miscellaneous

Prep Logbook

Automated Soxhlet Extraction

Batch ID: 1414574 Verified by: _____
 Analyst: Shannon Whitehead
 Method: SW846 3541

Lab SOP: GL-OA-E-066 REV# 5
 Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Clean Up 1 Amount 1 (mL)	Clean Up Post Clean Up Amount 1 (mL)	Final Volume (mL)	Prepped Factor (mL/g)
1203155897 MB	26-AUG-2014 17:10:00	30.03	H2SO4/KM 2 nO4	9	1	0.0333
1203155898 LCS	26-AUG-2014 17:10:00	30.01	H2SO4/KM 2 nO4	9	1	0.03332
1203155899 LCSD	26-AUG-2014 17:10:00	30	H2SO4/KM 2 nO4	9	1	0.03333
355423001	26-AUG-2014 17:10:00	30.04	H2SO4/KM 2 nO4	9	1	0.03329
1203155902 MS (355423001)	26-AUG-2014 17:10:00	30.02	H2SO4/KM 2 nO4	9	1	0.03331
1203155903 MSD (355423001)	26-AUG-2014 17:10:00	30.04	H2SO4/KM 2 nO4	9	1	0.03329
355423002	26-AUG-2014 17:10:00	30.01	H2SO4/KM 2 nO4	9	1	0.03332
355423003	26-AUG-2014 17:10:00	30.02	H2SO4/KM 2 nO4	9	1	0.03331
355423004	26-AUG-2014 17:10:00	30.04	H2SO4/KM 2 nO4	9	1	0.03329
355423005	26-AUG-2014 17:10:00	30.05	H2SO4/KM 2 nO4	9	1	0.03328
355423006	26-AUG-2014 17:10:00	30.01	H2SO4/KM 2 nO4	9	1	0.03332
355423007	26-AUG-2014 17:10:00	30.01	H2SO4/KM 2 nO4	9	1	0.03332
355423008	26-AUG-2014 17:10:00	30.05	H2SO4/KM 2 nO4	9	1	0.03328
355435001	26-AUG-2014 17:10:00	30.03	H2SO4/KM 2 nO4	9	1	0.0333
1203155900 MS (355435001)	26-AUG-2014 17:10:00	30.01	H2SO4/KM 2 nO4	9	1	0.03332
1203155901 MSD (355435001)	26-AUG-2014 17:10:00	30.03	H2SO4/KM 2 nO4	9	1	0.0333
355435006	26-AUG-2014 17:10:00	30.02	H2SO4/KM 2 nO4	9	1	0.03331

Type	Sample Id	Description	Serial Number	Spike Amt	Units	Comments:
LCS	1203155898	PCB Laboratory Control	WE140714-06	1	mL	Final Solvent: Hexane Clean up Initials: SLW Verified By: AV Clean up SOP: GL-OA-E-037 Clean up Date: 08-26-14
LCSD	1203155899	PCB Laboratory Control	WE140714-06	1	mL	
MS	1203155900	PCB Laboratory Control	WE140714-06	1	mL	
MS	1203155902	PCB Laboratory Control	WE140714-06	1	mL	
MSD	1203155901	PCB Laboratory Control	WE140714-06	1	mL	
MSD	1203155903	PCB Laboratory Control	WE140714-06	1	mL	
SURR	All	PEST LOW LEVEL SURROGATE 200 UG/L	WE140812-01	1	mL	

Prep Logbook

Batch ID: 1414574 **Verified by:** _____
Analyst: Shannon Whitehead
Method: SW846 3541

Lab SOP: GL-OA-E-066 REV# 5
Instrument: Semi-Volatiles Manual

Sample ID	Run Date	Aliquot (g)	Clean Up 1 Amount 1 (mL)	Clean Up Amount 1 (mL)	Post Clean Up Amount 1 (mL)	Final Volume (mL)	Prepped Factor (mL/g)
REGNT All	1:1 sulfuric acid		2130267		5	mL	
REGNT All	Hexane		2134327-B10		120	mL	
REGNT All	5% Potassium Permanganate		2134734		5	mL	
SOURC All	SODIUM SULFATE		2127169		30	g	